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GB0306553.9

By virtue of a direction given under Section 30 of the Patents Act 1977, the application is proceeding in the name of:-

BEAUTY SOURCE LTD
Incorporated in the United Kingdom
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United Kingdom

ADP No. 08822744001

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1. Your reference

NSNC / P28207GB

2. Patent application number

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P01/7700 0.00-0306553.93. Full name, address and postcode of the or of each applicant *(underline all surnames)*

0306553.9

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United KingdomPatents ADP number *(if you know it)*

If the applicant is a corporate body, give the country/state of its incorporation

United Kingdom

SECTION 50(4) ACT APPLICATION FILED
5/2/04

4. Title of the invention

TANNING BOOTH

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1305010

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country

Priority application number
*(if you know it)*Date of filing
(day / month / year)

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Number of earlier application

Date of filing
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YES

- a) any applicant named in part 3 is not an inventor; or
- b) there is an inventor who is not named as an applicant; or
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Continuation sheets of this form

Description 19

Claims(s) 5

Abstract 1

Drawing(s) 90 only

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Priority Documents 0

Translations of priority documents 0

Statement of inventorship and right to grant of a patent (Patents Form 7/77) NO

Request for preliminary examination and search (Patents Form 9/77) NO

Request for substantive examination (Patents Form 10/77) NO

Any other documents (please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature

ERIC POTTER CLARKSON

Date

21 March 2003

12. Name and daytime telephone number of person to contact in the United Kingdom

0115 9552211

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TANNING BOOTH

This invention relates to a booth in which a person may have a product such
5 as a cosmetic product applied to her skin. The invention relates particularly
to a tanning booth in which a person positioned within the booth may have a
sunless tanning lotion applied to her skin.

10 Recently public awareness of the harmful side effects of the sun's rays has
become higher. It is well known that too much exposure to the sun can lead
to skin cancer. Because of this risk, the popularity of cosmetic products
which provide a "sunless" tan has increased significantly over recent years.

15 Existing sunless tanning lotions are often in the form of creams or lotions
that may be self applied to the skin. A problem with such creams and
lotions is that it is very difficult to ensure an even tan since the tan often is
not visible until sometime after the cream or lotion has been applied to the
skin.

20 It is also known to have such creams and products applied by a beautician.
The advantage of this method is that a more even tan is usually achieved.

25 More recently it has been known to apply a sunless tanning lotion to the
skin of a person with an air brush. This known method involves a beautician
applying a sunless tanning lotion to a client using an air brush to spray the
sunless tanning product over the skin of the client to achieve an even
coverage over the skin.

30 A problem with this existing method is that although tanning products are
not harmful when inhaled by beauticians applying the product to clients.

may be exposed over significant periods of time to particles of sunless tanning lotion which may "hang" in the atmosphere during and after the brushing process. In addition, a client to which the product is applied is often surrounded by a mist of the tanning product during and after the spraying process and so may inhale a significant quantity of the product during the tanning process. This can cause discomfort.

According to a first aspect of the present invention there is provided a booth for accommodating a person the booth defining a booth volume and comprising:

a base portion and a top portion;
flow means for causing a downward air flow within the booth; and
projecting means for projecting a product onto at least some of the booth volume within the booth and onto a body of a person positioned in the booth.

The booth is adapted to accommodate a person requiring a product to be applied to her skin. The downward air flow within the booth means that the product projected within the booth and therefore onto the body of a person positioned within the booth is carried downwards in the air flow. This means that fewer particles of the product remain in the atmosphere and therefore fewer particles will be inhaled by either the person receiving the tan or the beautician, or both.

The booth is preferably used to apply a cosmetic product to the skin of the user. The cosmetic product could be any of a range of products such as skin moisturisers, but preferably the cosmetic product is a sunless tanning product.

Advantageously, the flow means comprises a first plenum of positive pressure located in the top portion of the booth, and a second plenum of negative pressure that is located in the base portion of the booth. The first and second plenums therefore result in the downward flow of air from the first plenum towards the second plenum.

The downward air flow may be arranged to occupy a predetermined volume within the booth. A person occupying the booth may stand in this predetermined volume during and after the tanning process.

Advantageously, the predetermined volume comprises a portion only of the booth volume.

This means that a beautician or other operator applying the sunless tanning lotion to a client may stand outside of the predetermined volume when applying the lotion to the client. This reduces the exposure of the operator to the tanning lotion.

Similarly, a client may leave personal belongings in a portion of the booth situated outside of the predetermined volume, which belongings will therefore not be exposed to the particles of sunless tanning lotion.

Preferably, the booth further comprises recirculating means for recirculating the air within the booth. The recirculating means comprises any suitable air moving device such as a fan. The air moving device is used to maintain the pressure differential between the first and second plenums and therefore contribute to the down flow of air within the booth.

Conveniently the first plenum pressurises air in excess of the ambient atmospheric pressure and the second pressure depressurises air to less than the ambient atmospheric pressure.

5 Advantageously the first and second plenums are connected to a duct in which the air moving device is located. The first and second plenums, the duct, the air moving device and the booth volume together form an air management system.

10 Advantageously, the booth further comprises a filter. The filter filters out particles of the product circulating within the booth.

Preferably the booth further comprises temperature means for controlling the temperature of air circulating within the booth. The temperature means
15 may comprise a heater which heats the air or alternatively may comprise a cooler which cools the air.

The projecting means may comprise a hand held tool such as an air gun. The air gun allows an operator to utilise a small hand held spraying tool to
20 spray a sunless tanning product onto the skin of a client. However many different products may be sprayed through the unit.

Alternatively the hand held tool could be an airless sprayer.

25 Conveniently the operator stands in a portion of the booth outside the predetermined volume, and the client being sprayed stands within the predetermined volume defined by the downward air flow.

Preferably however, the projecting means comprises a remotely operated
30 tool.

Advantageously, the remotely operable tool comprises a plurality of nozzles that project the product into the predetermined volume. This means that when a client is standing in the predetermined volume defined by the downward air flow, the remotely operated tool will direct a spray of product onto the client.

Preferably, the remotely operated tool comprises adjustment means for adjusting the height of the nozzle. This means that a client may stand within the predetermined volume while the height of the nozzle is adjusted in order to ensure complete and even coverage of the body of the client by the product.

Preferably, the adjustment means additionally adjusts the attitude of the nozzle. This means that the angle at which the product is incident on the body of a client may be varied in order to ensure consistent overall coverage of the product on the client's skin.

According to a second aspect of the present invention there is provided a tool for projecting a product into a booth, the booth comprising a base portion and a top portion, and flow means for causing a downward air flow within the booth.

According to a third aspect of the present invention there is provided a method of applying a product to a human body using a booth defining a booth volume and comprising;

a base portion and a top portion;

flow means for causing a downward air flow within the booth; and

projecting means for projecting a product onto at least some of the booth volume within the booth and onto a body of a person positioned in the booth.

- 5 In a preferred embodiment of the present invention, the remotely operable tool comprises means to automatically transport the tool to provide spraying between two zones in the booth. Preferably, the two zones comprise the entire height of the booth.
- 10 In one form, the automatic transport means comprises at least one slider unit moveable vertically between two positions, the slider unit supporting at least one spray means. Preferably there is provided two slider units supporting an arcuate spray arm comprising a plurality of spray guns.
- 15 The spray guns may be directed to spray product horizontally and/or at an angle to the horizontal (whether upwardly or downwardly) and/or some combination of these.

According to another aspect of the present invention, there is provided a
20 control system for a booth having projecting means for projecting a product onto the booth volume within the booth, the control system comprising operating means to operate the projecting means in selected regions of the booth volume.

- 25 Preferably, the control system operates the projecting means to project specified amounts of the product in selected regions of the booth volume, the specified amounts varying from zero to maximum flow of the product from the projecting means.

Preferably, the projecting means is movable along a path within the booth and the control system operates the projecting means as it moves along the path in accordance with predetermined instructions.

- 5 There is also provided a method of controlling operation of a booth having projecting means for projecting a product onto the booth volume within the booth, the method comprising operating the projecting means in selected regions of the booth volume.
- 10 There is also provided a computer program product directly loadable into the internal memory of a digital computer, comprising software code portions for performing the steps of the method when said product is run on a computer.
- 15 The invention will now be further described by way of example only with reference to the accompanying drawings in which;

Figure 1 is a schematic representation of a first embodiment of a booth according to a first aspect of the present invention;

Figure 2 is a schematic representation of a second embodiment of a booth according to a first aspect of the present invention;

Figure 3 is a schematic representation of the projecting means forming part of the booth of Figure 2;

Figures 4a, 4b and 4c are schematic representations of a variation of the booth of Figure 1;

25 Figures 5a, 5b and 5c are schematic representations of a variation of the booth shown in Figure 2; and

Figure 6 is a schematic representation of the air flow within the booth shown in any one of Figures 1 to 5.

Figure 7 is a perspective view of part of a further embodiment of a booth of the present invention;

Figures 8 to 11 show various forms of spray ring in the booth of Figure 7;

Figure 12 shows the exterior of the booth of Figure 7;

Figure 13 shows the door arrangement of the booth of Figure 7.

5 Referring to the Figures, a first embodiment of a booth according to the present invention is shown in Figures 1 and 6 are designated generally by the reference numeral 2. The booth defines a booth volume also known as a spray chamber 4 and comprises a base portion 6 and a top portion 8. The
10 booth 2 comprises an upper plenum 10, and a lower plenum 12. The upper plenum has a positive pressure with respect to atmospheric pressure, and the lower plenum has a negative pressure with respect to atmospheric pressure. This pressure difference causes a downward flow of air in the direction of arrows 14 (see Figure 6) of air circulating within the booth 2. The booth 2
15 further comprises a duct 16 comprising an air mover 18 in the form of for example a fan. The air mover 18 positioned in the duct 16 allows air to be recycled within the booth 2.

The booth further comprises a filter 20; the purpose of which will be
20 described further herein below.

The booth 2 is used to enable a person such as a client of a beauty salon to obtain an even tan through application of a sunless tanning lotion applied by an operator using an air gun.

25 The client to be tanned stands on the floor 22 of the booth 2 within a predetermined volume in which the down flow of air exists. An operator using an air gun (not shown) may stand at the operator access opening 24 which is outside the predetermined volume within which there is a
30 downward air flow. The spray gun is attached to a supply of the tanning

product to be applied to the client's skin. The spray gun causes the product to be sprayed onto a client's skin.

By means of the present invention therefore a highly specific and controlled delivery of atomised products such as a sunless tanning product may be applied to the client. There is no need for the client to manually manipulate the product once it has been applied to the skin in order to ensure even coverage.

- 10 During the act of spraying, the tanning product becomes air borne in the form of small droplets. The downward air flow of the present invention ensures that these small droplets are kept away from the client and the operator and that a clean supply of air for both the operator and the client is available. The filter 20 serves to filter out particles of the product to ensure
15 that the recirculating air is as clean as possible.

- Because there is a need for operator access, the downward air flow prevents air loss by the operator access opening 24. A percentage of the air flow is bled off from the first plenum 10 in order that the differential between the
20 air volume being drawn from the booth volume 4 into the second plenum and the air volume being moved into the booth volume 4 from the first plenum 10 is replaced by air movement into the downward flow of air within the booth volume from outside the booth 2 via the operator access opening 24. This management of the air flow prevents any outward flow of
25 particles from the booth volume 4 during the spraying process and ensures that all particles generated within the booth volume 4 must pass through the filter 20 thus ensuring that the client and the operator are maintained in clean air.

A downward flow of air is the most efficient way to move air over a human body as moving air downwards over a body ensures that the body presents a minimum cross sectional area of impedance to the air flow.

5 The downward air flow capitalises on the tendency for heavy atomised particles to drop downwards under the influence of gravity. The downward air flow thus uses gravity to assist in the process of extracting particles generated by the spraying tool from the booth volume 4.

10 Since air is recycled within the booth 2, it will not be necessary for a purchaser of the booth 2 to carry out building work to their premises in order to create ductwork to the atmosphere. By using a recirculating air stream there is no need for any building work to be carried out since no ductwork to the atmosphere is required.

15

The booth 2 further comprises a heater 26 which warms the air in the downward air flow. The combination of spraying a wet product onto a client's skin in conjunction with an air stream moving over the body of a client creates a "chill factor". By means of the heater 26 it is possible to
20 ensure that air passing over the body of a client is at an appropriate temperature. Further, after the spraying process has been completed, a client may be dried by the air flow.

Turning now to Figure 2, a second embodiment of the invention is
25 designated generally by the reference numeral 28. For all parts which correspond to parts shown in Figure 1, the same reference numerals have been used for clarity. In addition, the air flow within the booth 28 is similar to that within the booth 2 shown in Figure 1, and Figure 6 also relates to the air flow within the booth 28.

30

Booth 28 comprises a remotely operable tool 30 (shown in Figure 3) for applying a sunless tanning product to a client. The booth is similar to the booth shown in Figure 1 but additionally comprises doors 32 which may be closed once a client has entered the booth 28. The tool 30 comprises a plurality of nozzles 34 supported by a nozzle support 36 which is generally circular in shape. The nozzle support 36 is mounted on a post 38 which is attached to a power circuit, fluid circuit and air circuit forming part of the booth 28.

10 The tool 30 is an automated system which allows a client to be sprayed with a sunless tanning lotion, for example, without the need of an operator. The nozzle support 36 is the form of a lasso which provides mounting points for several nozzles 34 around its perimeter. The lasso then descends over the client standing in the area of the down flow of air and the nozzle delivers
15 the product to be applied to the client in a metered manner. The tool 30 also contains means for adjusting the angle of the nozzles in order that each nozzle may move through an arc pointing alternately upward and downward to vary the angle of incidence of the product on the client during the spray cycle. This ensures that the client's skin receives a comprehensive coating
20 of the product and further removes the necessity for manually manipulating the product once on the skin. The client remains in a static position during the spraying process. Following the spraying process the client remains within the heated recirculating air flow in order to allow the product to completely and quickly be dried upon the skin by the heated recirculating
25 air flow.

A further advantage of the tool 30 is that once the lasso 36 has moved below the head of the client, the downward air flow ensures that a minimum amount of spray will come into contact with the client's face. The client is
30 therefore able to breath freely during almost all of the spraying process.

A client entering the booth 28 must hold onto handles (not shown) positioned above the head of the client in order to start the operation of the tool 30. The handles also serve to place the client in the correct position for application of the product. Should the client release a handle at any time during the operation of the tool 30, all movement of the tool will immediately cease. Movement will not resume until the client regrips the handles.

Although the invention as hitherto been described with reference to a heating apparatus for heating the air flowing through the booth, it is envisaged that in warmer climates or during the summer of temperate climates it may be advantageous to cool the air flow.

It will also be possible to "upgrade" the version of the booth shown in Figure 1 in which an operator is required to apply the product to a client to the version of the booth shown in Figure 2 in which the product is applied automatically. This could be done by installing tool 30 into booth 2, and fitting doors to the booth.

20

Referring to Figures 4a, 4b and 4c a variation of the booth in Figure 1 is shown. Similarly Figures 5a, 5b and 5c show a variation of the booth shown in Figure 2.

There is shown in Figure 7 part of a spraying mechanism 50 of a further embodiment of booth 51.

The interior of booth 51 contains two slide units 52 and 53 which support a spray arm 54 to provide vertical upward and downward movement of arm

54 over the entire height of the booth.

Spray arm 54 comprises a horizontal arcuate arm containing a plurality of spray guns 55 to direct tanning lotion inwardly and horizontally generally towards the centre of arm 54 and hence onto any occupant of the booth.

5

Typically, spray arm 54 is of semi-circular form and slide units 52 to 53 are located at diametrically opposing positions on the periphery, as shown in Figure 7, but various exemplary variants are shown in Figures 8 to 11.

10 Thus, spray arm 54 can be shaped to form an arc of from 150° to 270° of a circle, and may include straight end portions 56 beyond the arc as shown in Figure 11. The spray guns may extend along the entire periphery of the arm.

15 In a variant, the slide units are not diametrically opposite on the periphery, but may be closer along the periphery, for example they may be at points on the periphery defining an angle of 90° therebetween.

The spray guns are positioned so as to direct the lotion horizontally. In a
20 variant, they may be positioned to direct the lotion at a small angle inclined to the horizontal. In another variant, the guns may be positioned to direct the lotion at various different angles either upwardly or downwardly, and either in a random manner or in an organised, progressively changing manner.

25

Spraying mechanism 50 also has a motor 57 and a gearbox 58 to provide the vertical motion of slide units 52, 53.

The "open" configuration of spray arm 54, as compared to the closed
30 circular form of lasso support 36, has been developed with safety in mind.

The spray arm 54 allows client access in from one side, regardless of the position within the spray chamber and it enables a quick exit in case emergency procedures need to be followed. It also allows for a quick exit if the client, for whatever reason, feels uncomfortable with the process. If movement of the spray arm 54 is halted at any position during its travel, the client is still able to exit the booth with minimal discomfort or danger.

In order to spray the client over the whole body using this design of spray arm 54, the application of tanning lotion must be applied in two steps. In the first step the front section of the body is sprayed; the client then turns through 180 degrees, and actuates operation of the spray arm 54 again, thereby applying lotion to the rear section of the body. Multiple spray guns would only be seen on one section the spray arm.

The spray mechanism 50 of booth 51 has an operation control facility allowing a client to programme operation of the slide system and spray arm 54 to accommodate their specific requirements. For example, the client may wish to have only the face sprayed, or only the face and shoulders, or only top sections of the body, or only lower section of the body, or indeed the entire body.

This system makes provision for this by allowing the client to select where the spray guns switch on and off during vertical travel of the spray. Also, the client can select that some of the spray guns can be switched off at certain heights, and/or that the rate of output can be varied at different heights. Thus the amount of lotion applied can be varied according to part of the body.

In order to programme such a sequence, the client operates a series of push buttons on a remote hand-held device during a slow, practice sequence of

the slide system. As the slide moves along the vertical path, for example the "guns-on" position is set when appropriate, followed by the "guns-off" position when appropriate.

- 5 Once the operation has been selected, the slide is returned to the rest or start position, allowing a full spray cycle to occur once the operator subsequently presses the start button. The system allows each of a number of different programs to be stored, so that any can be re-used if or when appropriate. The system allows cancellation of the programmed switching points, enabling re-programming of the switching points.
- 10

Booth 51 has a motor drive system which allows for programmable and controlled movement of the spray arm 54 throughout the vertical travel.

- 15 Alternative designs may allow for pneumatically actuated slide systems, but they tend to lack precise speed control, acceleration and deceleration parameters as compared to the programmable, electrically driven slide system.
- 20 The drive system is based on a stepper motor arrangement, allowing for the programmable switching of the spray guns according to the different requirements of the client. Alternative drive solutions include servo motor control, AC and DC stepper motors.
- 25 In addition to the drive motor arrangement, the rate of rotation is reduced using a gearbox arrangement. This provides a higher torque, required to overcome the weight of the spray arm 54 and actually allows for more precise positioning of the slide systems. If using a system with single slide, only one output shaft is required, directly coupled to the slide input shaft.
- 30 However, the current design allows for the driving of two slides located

opposite each other. Therefore, the gearbox includes two output shafts and single gearbox and two slide systems are connected using flexible drive shafts. These are located within the upper chamber to be closer to the control system, although it is feasible to locate them in the lower chamber if
5 required.

The door arrangement comprises two sliding doors, meeting in the centre and allowing for manual closure of the doors and automated opening of the doors using actuated cylinders following the baking process.

10

In order to keep the doors closed, a magnetic latch system is used. This allows the doors to stay closed against the spring-loaded "opening" system, but also allows for manual release of the doors should an emergency procedure arise, requiring the client to exit the booth. If a power cut
15 experienced, the doors are automatically opened by default, immediately providing a clear exit for the client.

Booth 51 has a novel runner system, based on the utilisation of precision bearings and guide rails. Current systems available on the market have not
20 proved satisfactory as booth 51 requires much thinner profile doors than those currently available. The doors 58 of booth 51 also incorporate a double-glazing arrangement in order to reduce noise levels emitted from the system during operation. The doors 58 run between the inner and outer skins 59, 60 of the booth 51 as indicated in Figure 13 in slots 61.

25

The automatic control panel is fitted within a space, previously provided within the booth 51 and accessible through the equipment access door located to one side of the main booth structure.

Booth 51 has a compressor arrangement to pressurise a 25 to 75 litre reservoir, 50 litres being the nominal, to a pressure exceeding 4 Bar. The reservoir is used for storing the necessary energy required to supply the multiple automatic spray guns, mounted to the spray arm 54, with atomising air and air required for effecting the Fan Size. In addition, air is used for triggering the spray guns, allowing them to spray fluid. Air will also be used for triggering the door release cylinders, although these may also be done using electronic means, (solenoids).

- 10 The booths 2 or 28 as previously described can readily be modified either prior to installation or once at the operational location in order to have the features and operability of the more technically sophisticated booth 51.

Also any booth 51, whether so modified or otherwise, can still be used in a manual operation mode, for example to provide certain additional applications including highlighting and detailing.

In order to modify a manual tanning booth 2, the following actions need to be taken:

20

The inner skins of the manual tanning booth 2 are removed in order to gain access to the major re-fitting areas associated with the fitting of slides and the associated drive system.

- 25 The two slide units 52, 53 are mounted and secured within the booth structure between the outer skin and the area allocated to the inner skins.

In order to apply lotion along the entire internal height of the booth, it is necessary to "sink" each end of the slide units 52, 53 into the base portion 6 and top portion 8 of chamber 2.

30

In order to fit the slide units 52, 53, the base and top portions 6, 8 have a pre-machined location feature integrated to the manual booth structure in preparation for easy, on-site upgrades.

5

Once the slide units 52, 53 are secured in position within the inner section of the tanning booth, cover plates are fitted over the slide(s). Cover plates are required in order to isolate the spray area (contamination area), from the slides. Excess material being deposited on the running features of the slides may prove detrimental to the long running cycles of the system.

10

These cover plates are integrated in such a way that they may also add to the structural robustness of the system. Once fitted, the spray arm 54 is mounted to the slide carriage plate(s). The slide carriage plates are designed such that they allow for secure fixing to the slide(s), whilst maintaining the isolation between the contamination area (spray area), and the slides by running through bush strips within the cover plates.

15

All services, (electrical, pneumatic and fluid supply), are also managed through the slide area to the spray arm 54 using the same disciplines to prevent contamination from within the spray area to the internal equipment functions within the booth equipment enclosures. This ensures robust, reliable and safe operation of the system to be maintained.

20

Once the spray arm 54 has been fitted and associated service lines attached, the motor drive system is fitted.

25

Following the fitting of the spray ring 54 and associated drive system, and whilst access is still maintained to the inner sections between the skins, the sliding front doors are now fitted. These doors, not present on the manual

30

system, are required to enclose the spray chamber. This prevents overspray from leaving the spray booth chamber, and also provides the client with the privacy required to allow the client to be sprayed naked within the booth.

- 5 The inner skins are now re-fitted to the inner chamber of the spray booth. These have to be cut in half, and material removed, in order to cater for the fitting of the slide cover plates. Alternatively, new skins are fitted.

- 10 In addition, and to accommodate the newly fitted sliding doors, the front vertical aperture supports are replaced with a new design of support simply to accommodate the sliding doors running in between the inner and outer skins. The manual booth supports are removed.

- 15 The manual control board is replaced with a fully tested automatic control system capable of running both the manual and automatic elements of the system.

- 20 The automatic control panel is fitted within a space, previously provided within the booth enclosure and accessible through the equipment access door located to one side of the main booth structure. This requires re-location of the manual control enclosure, should it be retained within the system, or simply replaced if it is to be removed from the system. Once the control system is fitted, the equipment peripherals are wired up ready for testing.

25

This completes the upgrade operation.

30

CLAIMS

5

1. A booth for accommodating a person defining a booth volume and comprising:

a base portion and a top portion;

flow means for causing a downward air flow within the booth; and

10

projecting means for projecting a product onto at least some of the booth volume within the booth and onto a body of a person positioned in the booth.

15

2. A booth according to Claim 1 wherein the product comprises a cosmetic product.

3. A booth according to Claim 1 or Claim 2 wherein the cosmetic product is a sunless tanning product.

20

4. A booth according to any one of the preceding claims wherein the flow means comprises a first plenum of positive pressure located in the top portion of the booth, and a second plenum of negative pressure located in the base of the booth.

25

5. A booth according to any one of the preceding claims wherein the downward air flow occupies a predetermined volume within the booth.

6. A booth according to Claim 5 wherein the predetermined volume comprises a portion of the booth volume.

30

7. A booth according to any one of the preceding claims further comprising recirculating means for recirculating the air within the booth.
8. A booth according to Claim 7 wherein the recirculating means comprises a fan.
9. A booth according to Claims 7 or Claim 8 wherein the recirculating means comprises a filter.
10. A booth according to any one of the preceding claims further comprising temperature means for controlling the temperature of the air.
11. A booth according to Claim 10 wherein the temperature means heats the air.
12. A booth according to Claim 10 wherein the temperature means cools the air.
13. A booth according to any one of the preceding claims wherein the projecting means comprises a hand held tool.
14. A booth according to Claim 13 wherein the hand held tool comprises an air gun.
15. A booth according to Claim 13 where the hand held tool comprises an airless sprayer.
16. A booth according to any one of Claims 1 to 12 wherein the projecting means comprises a remotely operable tool.

17. A booth according to Claim 16 wherein the remotely operable tool comprises a plurality of nozzles adapted to project the product into the predetermined volume.

5 18. A booth according to Claim 17 wherein the remotely operable tool further comprises adjustment means for adjusting the height of the nozzles.

19. A booth according to Claim 18 wherein the adjustments means additionally adjusts the attitude of the nozzles.

10

20. A booth according to any one of Claims 15 to 19 wherein the remotely operable tool comprises a nozzle support defining a substantially circular shape, the nozzles being positioned to spray the product into an area defined by the nozzle support.

15

21. A booth according to any preceding claim comprising a remotely operable tool with means to automatically transport the tool to provide spraying between two zones in the booth.

20 22. A booth according to Claim 21 when the automatic transport means comprises at least one slider unit moveable vertically between two positions, the slider unit supporting at least one spray means.

23. A booth according to any preceding claim comprising spray guns
25 which are directed to spray product horizontally and/or at an angle to the horizontal (whether upwardly or downwardly) and/or some combination of these.

24. A tool according to any one of Claims 15 to 19.

30

25. A control system for a booth having projecting means for projecting a product onto the booth volume within the booth, the control system comprising operating means to operate the projecting means in selected regions of the booth volume.

5

26. A control system according to Claim 25 wherein the system is operable on the projecting means to project specified amounts of the product in selected regions of the booth volume, the specified amounts varying from zero to maximum flow of the product from the projecting means.

10

27. A control system according to Claim 25 or 26 wherein the control system is operable on the projecting means to be movable along a path within the booth and the control system operates the projecting means as it moves along the path in accordance with predetermined instructions.

15

28. A method for applying a product to a human body using a booth as claimed in any one of Claims 1 to 20.

29. A method of applying a product to a human body using the tool of Claim 24.

20

30. A method of controlling operation of a booth having projecting means for projecting a product onto the booth volume within the booth, the method comprising operating the projecting means in selected regions of the booth volume.

25

31. A computer program product directly loadable into the internal memory of a digital computer, comprising software code portions for

performing the steps of the method of Claim 30 when said product is run on a computer.

32. A booth substantially as herein before described with reference to and/or as shown in any one or more of the Figures in the accompanying
5 drawings.

33. A tool substantially as herein before described with reference to and/or as shown in any one or more of the Figures in the accompanying drawings.

10

34. A method substantially as herein before described with reference to and/or as shown in anyone or more of the Figures in the accompanying drawings.

TANNING BOOTH**ABSTRACT**

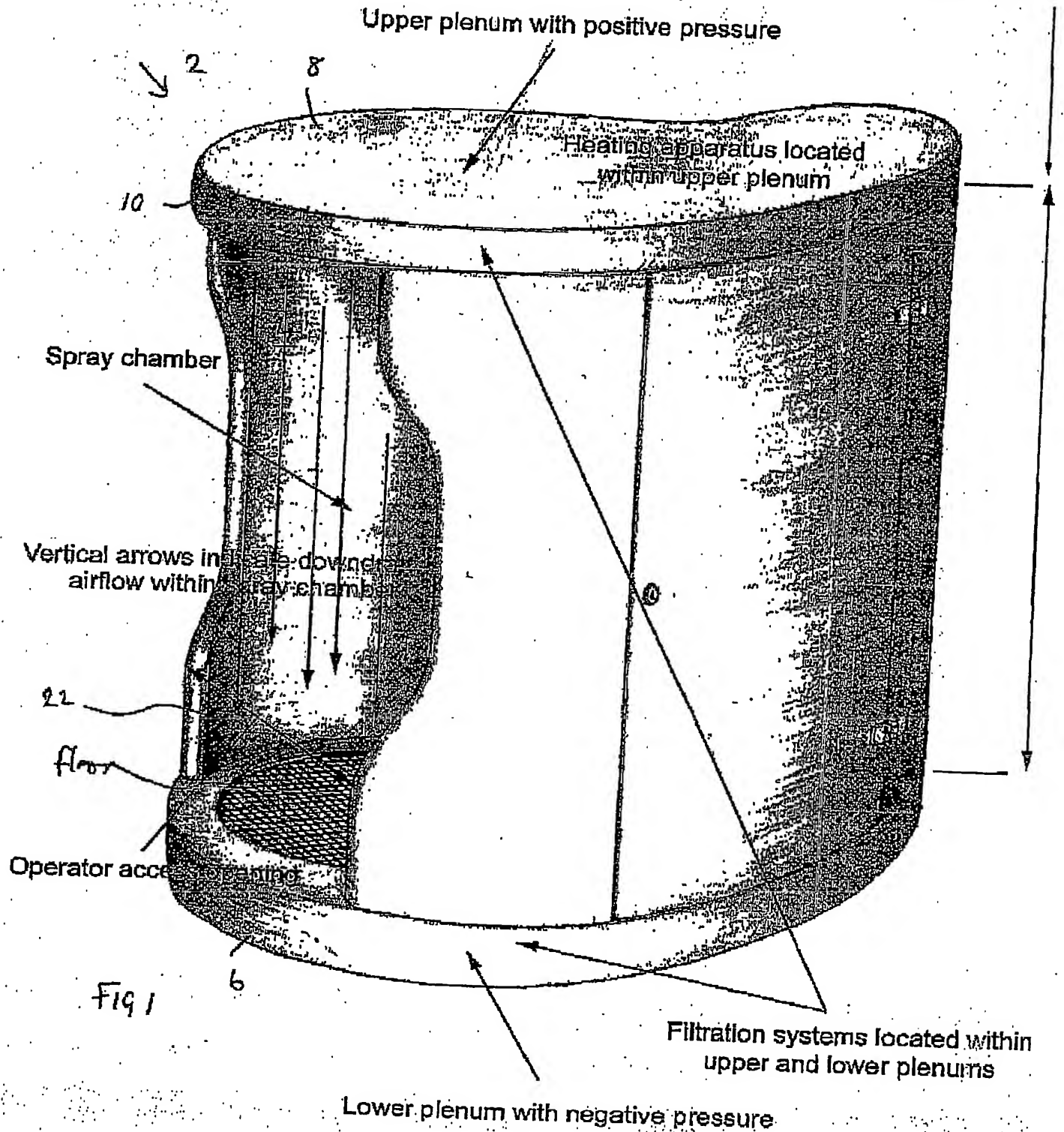
A booth for accommodating a person defining a booth volume and
5 comprising:

a base portion and a top portion;
flow means for causing a downward air flow within the booth; and
projecting means for projecting a product onto at least some of the
booth volume within the booth and onto a body of a person positioned in the
10 booth.

Figure no.1

1/9

Duct and air mover
located within here to connect
upper and lower plenums

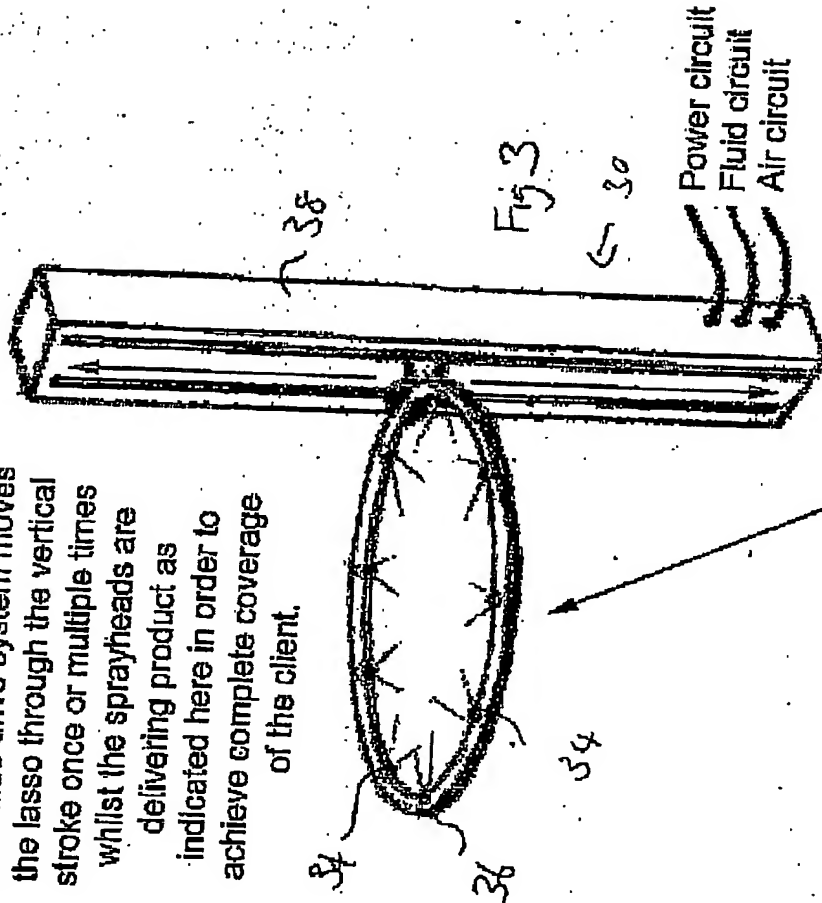
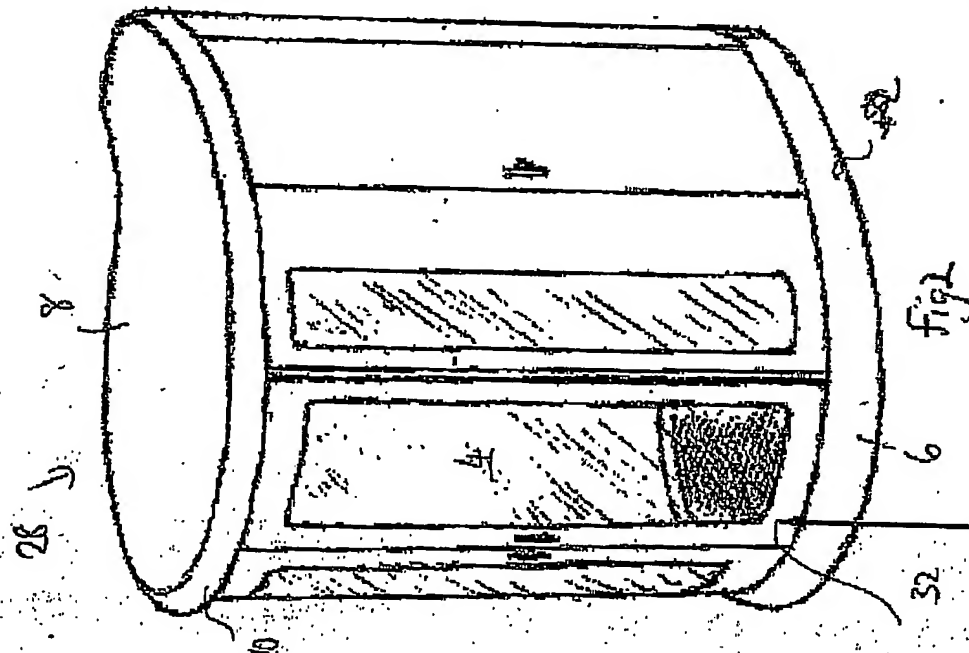


Note - this diagram represents only one possible orientation of these component parts

2/9

Other than those shown, other modifications are also made to AirPort I in order to convert it fully to AirPort II. However, these constitute the main functionality alterations. The fluid delivery system, air delivery system and also several aspects of the control system are upgraded in the modification of AirPort I to create a fully functional AirPort II.

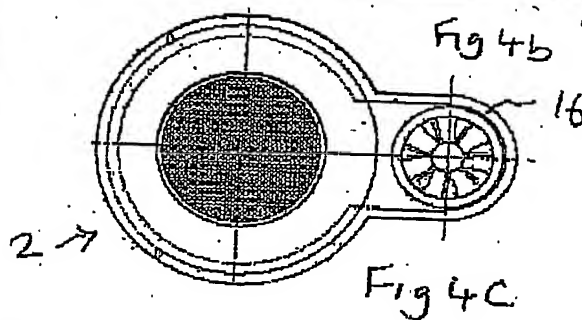
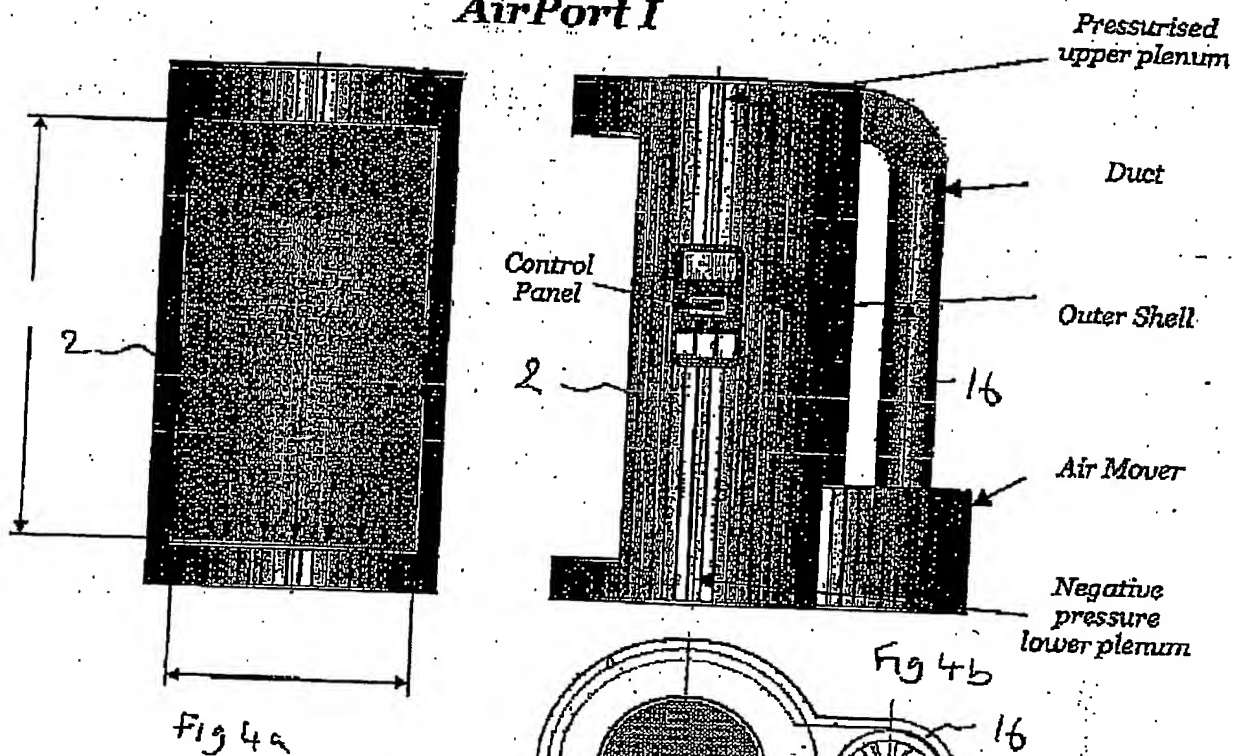
The slide drive system moves the lasso through the vertical stroke once or multiple times whilst the sprayheads are delivering product as indicated here in order to achieve complete coverage of the client.



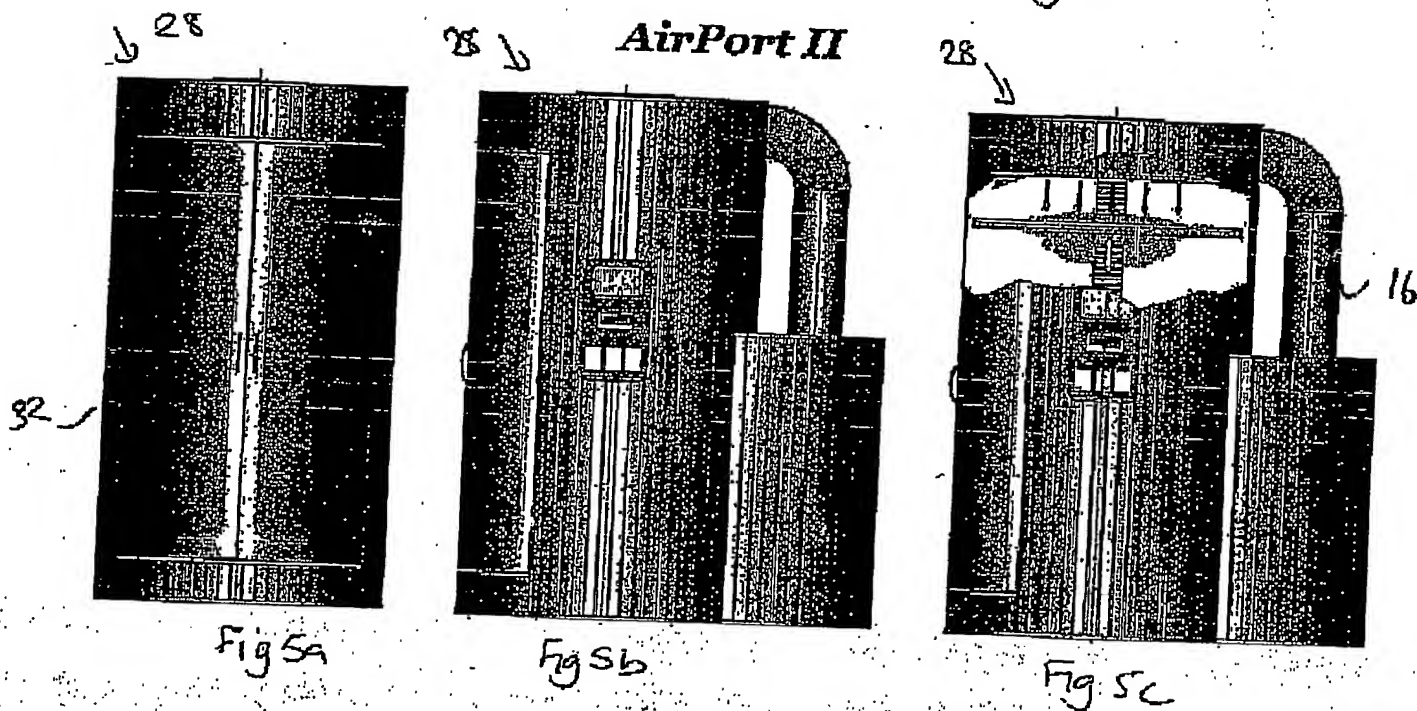
This constitutes the unmanned spray lasso and slide drive system. In order to convert AirPort I into AirPort II, this unit is installed into the AirPort chassis. Doors are also retro-fitted as shown opposite.

3/9

AirPort I



AirPort II



4/9

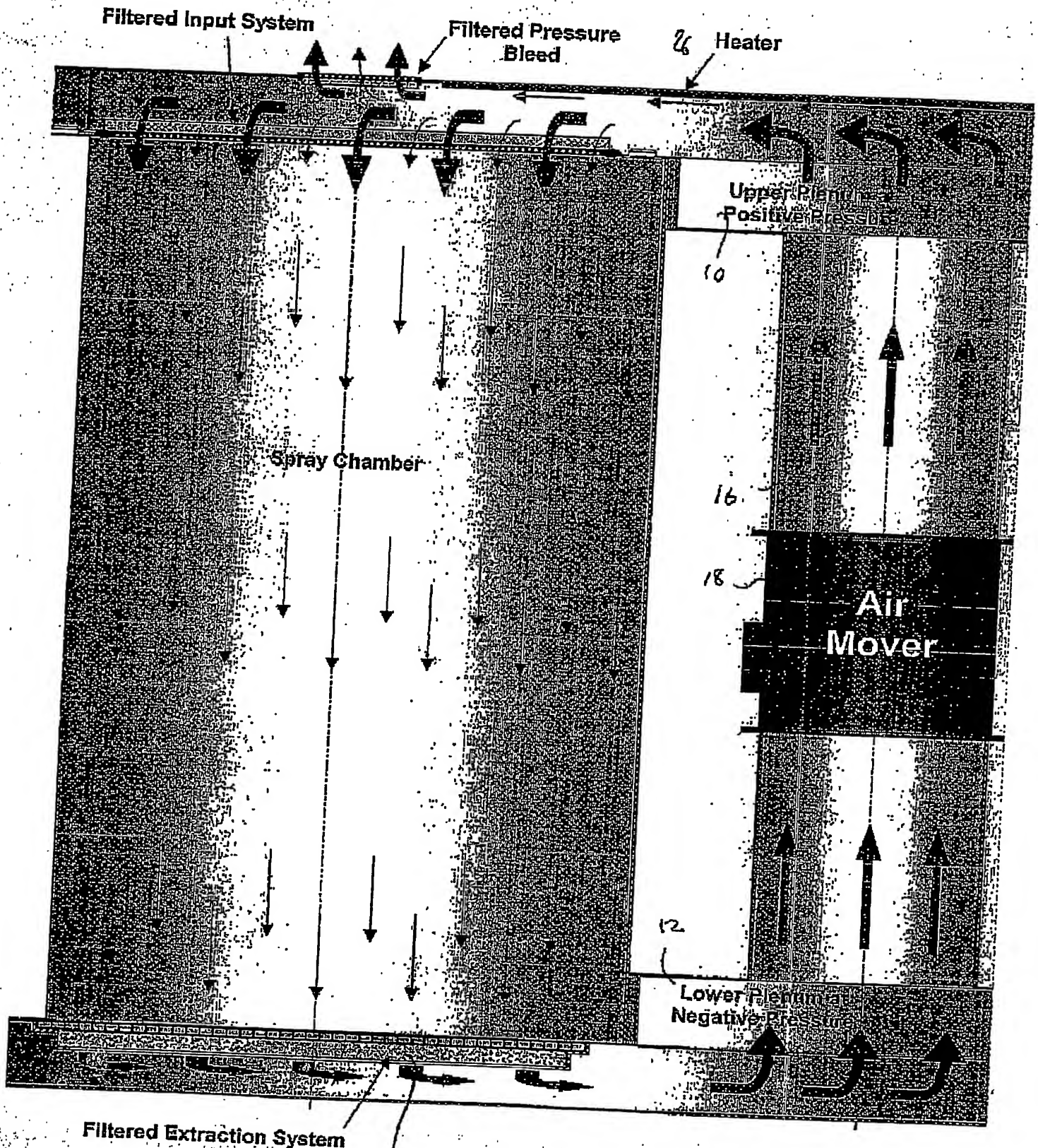


Figure 6

5/9

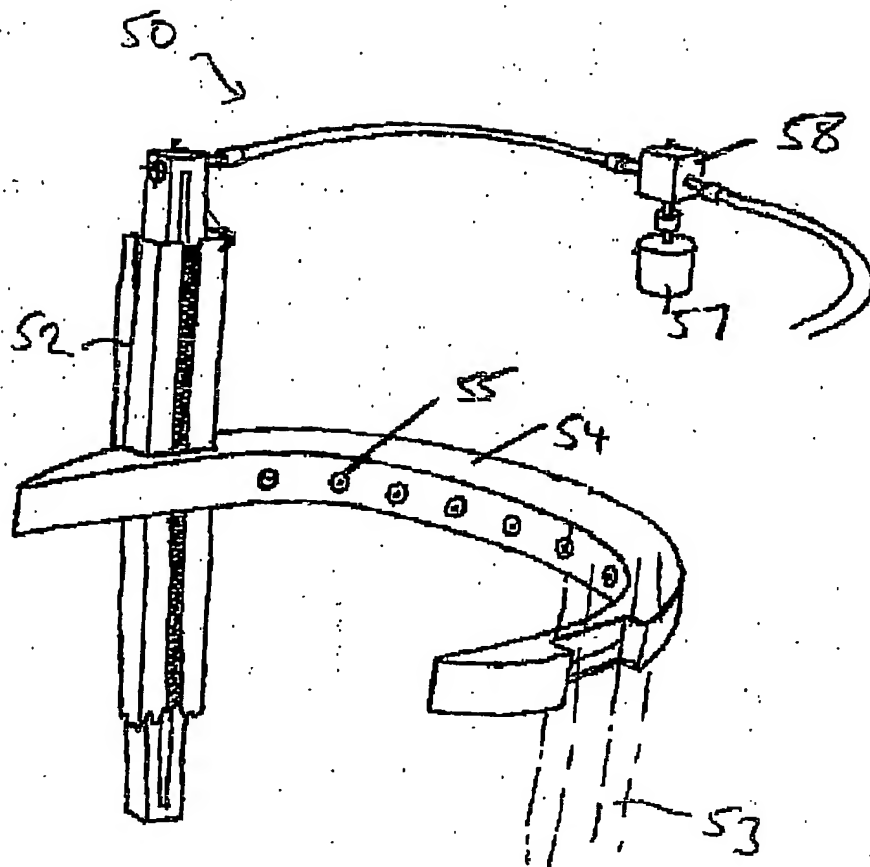


Figure 7

6/9

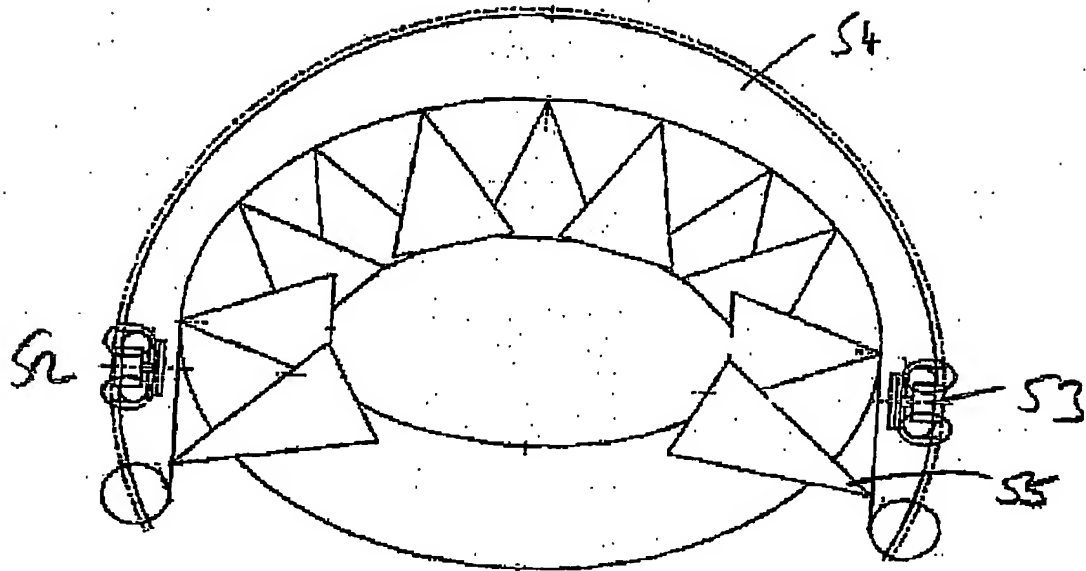
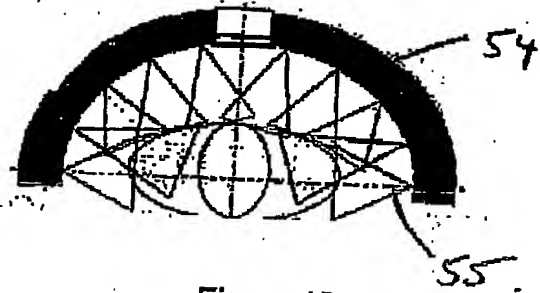
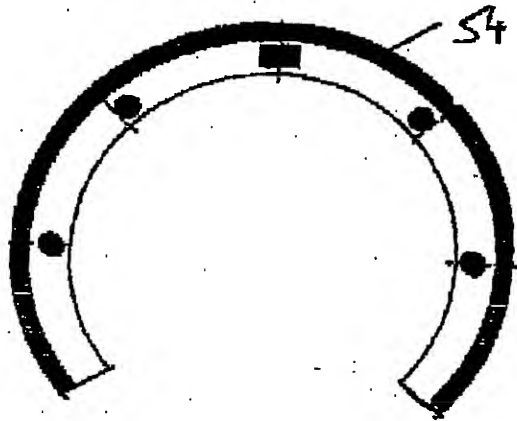
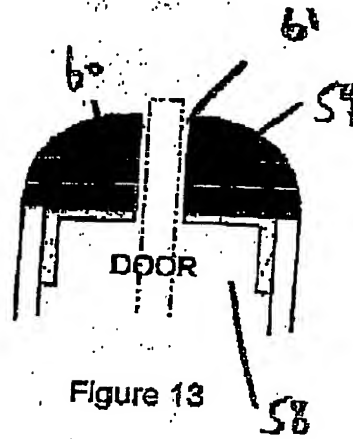


Figure 8

7/9



8/9

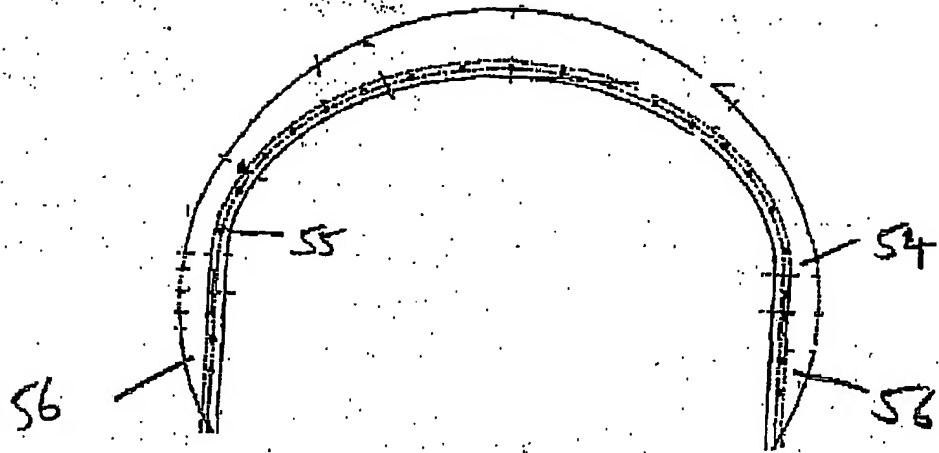


Figure 11

9/9

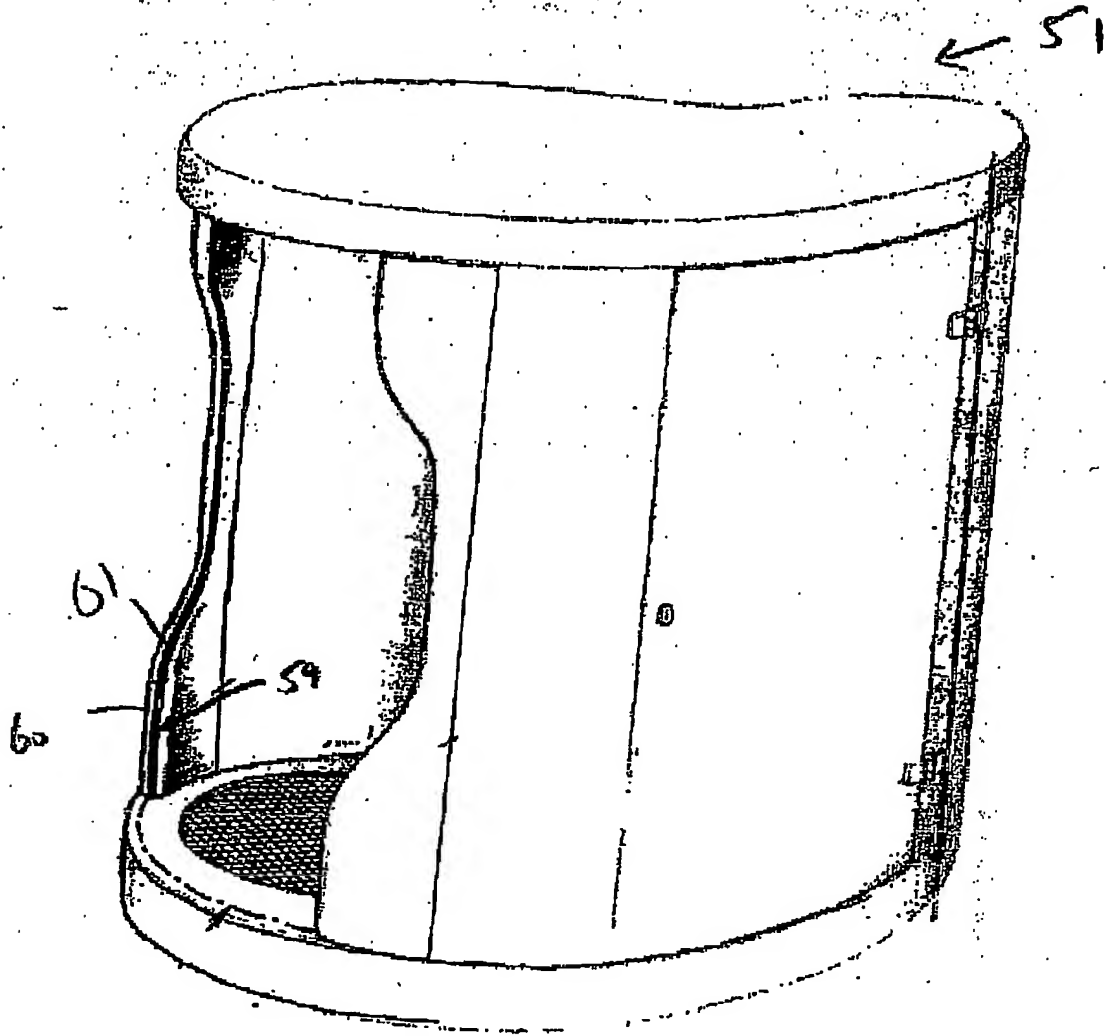


Figure 12

PCT/GB04/000478.

PCT Application
PCT/GB2004/000472

